



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/849,522	05/20/2004	Joo-ho Kim	1793.1266	5579
49455	7590	04/05/2006		EXAMINER
STEIN, MCEWEN & BUI, LLP				IVEY, ELIZABETH D
1400 EYE STREET, NW				
SUITE 300			ART UNIT	PAPER NUMBER
WASHINGTON, DC 20005			1775	

DATE MAILED: 04/05/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)
	10/849,522	KIM ET AL.
	Examiner Elizabeth Ivey	Art Unit 1775

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on 25 January 2006.
- 2a) This action is **FINAL**. 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1-70 is/are pending in the application.
- 4a) Of the above claim(s) 32-36, 52-63 and 66-70 is/are withdrawn from consideration.
- 5) Claim(s) _____ is/are allowed.
- 6) Claim(s) 1-31, 37-51, 64 and 65 is/are rejected.
- 7) Claim(s) _____ is/are objected to.
- 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) <input type="checkbox"/> Notice of References Cited (PTO-892)	4) <input type="checkbox"/> Interview Summary (PTO-413)
2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)	Paper No(s)/Mail Date. _____.
3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.	5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)
	6) <input type="checkbox"/> Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-31, 37-51, 64-65 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claims 1-31, 37-51, 64-65, claims 1 and 37, recite “forming a resist pattern on the multi-layer structure, the resist pattern having a size smaller than a diffraction limit of the laser beam”. This phrase is not a positive recitation and is not considered to structurally define the article over the prior art. Additionally, it is not clear what constitutes the size of the resist pattern or the diffraction limit of the laser beam or how each are measured.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-9, 17-27, 37,46-48 and 64 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent 5,648,134 to Shiratori et al.

Regarding claims 1-9, 17-18, 21-26, 37,46-48 and 64, Shiratori discloses a recording medium comprising a polycarbonate or glass substrate with a dielectric layer, a magnetic layer, and another dielectric layer formed on the substrate in that order (column 3 lines 40-49). Shiratori discloses the dielectric may be ZnS-SiO₂ (column 6 lines 54-55) and the magnetic layer may consist of a rare earth-iron group alloy selected from a group including Nd and Tb with at least one iron group element selected from a group including Fe and Co (column 3 lines 50-55), allowing for the use of NdFeCo or TbFeCo as the magnetic layer. Because a chemical composition and its properties are inseparable (*MPEP 2112.02*) and because the prior art exemplifies the applicant's claimed composition in relation to the dielectric and magnetic layers, the claimed physical property relating to the volume change is inherently present in the prior art. Therefore, the addition of the claimed physical property to the claim language fails to provide patentable distinction over the prior art.

Regarding claims 19, 20, and 27, Shiratori discloses a first dielectric layer having a thickness of 150nm, a magnetic alloy layer having a thickness of 20nm and a second dielectric layer having a thickness of 15nm.

Claims 1, 10-12, 37, 42-44 and 65 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent 4,626,480 to Shigeta et al.

Regarding claims 1, 10-12, 37, 42-44 and 65, Shigeta discloses a recording medium comprising a magnetic film deposited on a substrate (column 1 lines 64-66). Shigeta discloses the magnetic film is preferably comprised of tungsten oxide (WO_x), (a transition metal oxide) which goes through partial reduction (column 2 lines 54-60). Because a chemical composition and its properties are inseparable (*MPEP 2112.02*) and because the prior art exemplifies the applicant's claimed composition in relation to the metal oxide magnetic layer, the claimed physical property relating to the volume change is inherently present in the prior art. Therefore, the addition of the claimed physical property to the claim language fails to provide patentable distinction over the prior art.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 38-41 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent 5,648,134 to Shiratori et al. as applied to claim 37.

Regarding claims 38-41, Shiratori discloses a recording medium having all of the limitations of claim 37 and a transformation layer comprising a layered structure of a dielectric layer, a magnetic layer, and another dielectric layer formed on the substrate in that order (column 3 lines 40-49). Shiratori discloses the dielectric may be ZnS-SiO₂ (column 6 lines 54-55) and the magnetic layer may consist of a rare earth-iron group alloy selected from a group including Nd and Tb with at least one iron group element selected from a group including Fe and Co (column 3 lines 50-55), allowing for the use of NdFeCo or TbFeCo as the magnetic layer. Because a chemical composition and its properties are inseparable (*MPEP 2112.02*) and because the prior art exemplifies the applicant's claimed composition in relation to the dielectric and magnetic layers, the claimed physical property relating to the volume change is inherently present in the prior art. Therefore, the addition of the claimed physical property to the claim language fails to provide patentable distinction over the prior art. Shiratori also discloses the dielectric may be ZnS-SiO₂ (column 6 lines 54-55) but does not specifically disclose the dielectric

layers and the alloy layer as a single layer. Because the layers are formed in the same method and are essentially joined together it would have been obvious to a person having ordinary skill in the art to form the individual layers as a single layer.

Claims 13-16, 28-31, 45, and 49-51 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent 5,648,134 to Shiratori et al. as applied to claims 1 and 37 in view of U.S. Patent 4,626,480 to Shigeta et al as applied to claims 1, 10, 37 and 42.

Regarding claims 13-15, 28-31, 45, and 49-51, Shiratori discloses a recording medium having all of the limitations of claims 1 and 37 and discloses a transformation layer comprising a layered structure of a dielectric layer, a magnetic layer, and another dielectric layer formed on the substrate in that order (column 3 lines 40-49). Shiratori also discloses the dielectric may be ZnS-SiO₂ (column 6 lines 54-55) but does not disclose the transformation layer comprising a metal oxide. Shigeta discloses a recording media comprising a magnetic (transformation) layer comprising a metal oxide particularly tungsten oxide (WO_x), (a transition metal oxide) which goes through partial reduction (column 2 lines 54-60), and discloses that it has a particularly high coercive force, which is beneficial for use for high-density recording (column 1 lines 18-22 and 54-58). Because Shigeta discloses a high coercive force is important for high-density recording and because both the metal oxide and the alloy layers are magnetic layers used in recording media it would have been obvious to a person having ordinary skill in the art at the time of the invention to replace the alloy layer of Shiratori with the metal oxide layer of Shigeta to provide the media with good high-density recording characteristics. Additionally, because a

chemical composition and its properties are inseparable (*MPEP 2112.02*) and because the prior art exemplifies the applicant's claimed composition in relation to the magnetic layer and the dielectric layers, the claimed physical property relating to the volume change is inherently present in the prior art. Therefore, the addition of the claimed physical property to the claim language fails to provide patentable distinction over the prior art.

Regarding claim 16, Shigeta discloses the thickness of the metal oxide layer as between 200-2000 angstroms or 20-200 nm.

Response to Arguments

The examiner acknowledges applicant's amendment of claims 1 and 37 and indicates the associated rejection above.

Applicant's arguments filed January 25, 2006 have been fully considered but they are not persuasive.

Regarding Shiratori and Shigeta, the structures disclosed by Shiratori and Shigeta exemplify the claimed structure, and applicant has not shown that the disclosed structure would not meet all of the limitations of the claim as indicated in the rejections above.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. U.S. Patent 4,737,408 To Kuwahara et al discloses a recording media comprising a substrate with a layer of rare earth and transition metal elements including TbFeCo with or without an intermediate dielectric layer which may include ZnS and SiO₂.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Elizabeth Ivey whose telephone number is (571) 272-8432. The examiner can normally be reached on 7:00- 4:30 M-Th and 7:00-3:30 alt. Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jennifer McNeil can be reached on (571) 272-1540. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Elizabeth D. Ivey

Elizabeth D. Ivey

J. C. McNeil
JENNIFER C. MCNEIL
SUPERVISORY PATENT EXAMINER
3/27/06